

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2004/004324

International filing date (day/month/year)
26.03.2004

Priority date (day/month/year)
28.03.2003

International Patent Classification (IPC) or both national classification and IPC
G02F1/13363

Applicant
FUJI PHOTO FILM CO., LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-22
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-22
Industrial applicability (IA)	Yes: Claims	1-22
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

1. Cited documents

The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

- D1 : EP 0 793 133 A (FUJITSU LTD) 3 September 1997 (1997-09-03)
- D2 : US 2002/149725 A1 (HASHIMOTO KIYOKAZU) 17 October 2002 (2002-10-17)
- D3 : WO 02/059192 A (MATSUFUJI AKIHIRO ; SHINAGAWA YUKIO; FUJI PHOTO FILM CO LTD) 1 August 2002 (2002-08-01) & US 2004/077752 A1; 22 April 2004 (2004-04-22) used as an English translation of the cited document.
- D4: US 2001/026338 A1 (AMINAKA EIICHIRO) 4 October 2001 (2001-10-04)

2. Inventive Step

The present application does not meet the requirements of Article 33(2) PCT, because the subject-matter of claims 1-22 does not involve an inventive step.

2.1 Claim 1

Document D1 discloses:

a liquid crystal display device (40) comprising,
two polarisers (34A, 34B) having orthogonal axis, a liquid crystal cell (31) in a vertically aligned mode (title),
a first optically-anisotropic film having an optically positive refractive anisotropy, comprising a layer (33B1) having an in-plane retardation R_e falling within the range 40 to 150 nm for visible light (p.14, I.21-24),
a second optically-anisotropic film having an optically negative refractive anisotropy, comprising a layer (33B2) having an in-plane retardation R_e below 10 nm and a retardation in a direction normal to the surface R_{th} falling within the range 60 to 250 nm for visible light (Table 1 and p.14, I.29-34).

The only technical feature of claim 1 which is not disclosed in D1 is that the first optically-anisotropic layer is formed of rod-like liquid crystalline molecules. Compensation sheets having a positive birefringence are well known in the art and

one of the most common way to realize them is to use rod-like liquid crystal molecules. The subject-matter of this claim therefore lacks inventive step.

2.2 Claim 14

The subject-matter of this claim differs from that of claim 1 in that the first optically anisotropic layer is made of a stretched thermoplastic polymer film instead of rod-like liquid crystal molecules and that the second optically anisotropic layer is made of discotic liquid crystal molecules.

Document D2 discloses a stretched thermoplastic polymer film (parag. [0071]-[0073]) and a layer comprising discotic liquid crystal molecules (parag. [0175]) both used as compensation sheets.

When trying to realize the device of D1, the skilled person would look for documents dealing with the manufacturing of compensation sheets in the prior art and would find D2, the combination of both documents is therefore obvious. The skilled person would further apply the manufacturing methods described in D2 to the device of D1 thereby realizing a device having all the technical features of claim 14, which therefore lacks inventive step.

2.3 Claim 16

The subject-matter of this claim differs from that of claim 1 in that the first optically anisotropic layer is made of a cellulose acylate film, having acetyl and C₃₋₂₂ acyl groups replacing hydroxy groups with a degree of acetylation A and a degree of acylation B wherein $2 \leq A+B \leq 3$, instead of rod-like liquid crystal molecules and that the second optically anisotropic layer is made of discotic liquid crystal molecules.

Document D3 discloses a cellulose acylate film having all the technical features of the claimed film (parag. [0019]-[0020] and [0095]) used as a compensation sheet in a liquid crystal display (parag. [0113]), furthermore as already mentioned, the use of discotic liquid crystal molecules for negative birefringent film is well known in the art.

When trying to realize the device of D1, the skilled person would look for documents dealing with the manufacturing of compensation sheets in the prior art and would find D3, the combination of both documents is therefore obvious. The

skilled person would further apply the manufacturing methods and the materials described in D3 to the device of D1 thereby realizing a device having all the technical features of claim 16, which therefore lacks inventive step.

2.4 Claims 2-7 and 15

Document D2 further discloses rod-like molecules having polymerizable groups (parag. [0701]) which can be represented by formula (I) (formulas N26-N28) and which are aligned orthogonally to the absorption axis of the polarizing sheet (parag [0714]), discotic liquid crystal molecules having polymerizable groups (parag [0175]) having their axis in a direction normal to the plan of the layer (parag [0168]) and a stretched polycarbonate film used as an anisotropic layer (parag. [0071]-[0073]).

The combination of documents D1 and D2 would therefore lead to the subject-matter of claims 2-7 and 15.

2.5 Claims 8-10 and 17

Document D3 further discloses the substitution of hydroxyl group by butanoyl or propionyl groups in the cellulose acylate layer (parag. [0020]) and the fact that the anisotropic layer can be used as a protective layer for the polarizing layer (parag. [0001]).

The combination of documents D1 and D3 would therefore lead to the subject-matter of claims 8-10 and 17.

2.6 Claim 11

Document D1 further discloses a liquid crystal cells between the two anisotropic layers (fig. 57). The subject-matter of claim 11 therefore also lacks inventive step.

2.7 Claims 12 and 13

Document D4 discloses a cellulose acetate having substantially no birefringence used as a protective film for anisotropic layers in liquid crystal displays (parag. [0002], [0011] and [0015]).

The combination of documents D1 and D4 would therefore lead to the subject-matter of claims 12 and 13.

2.7 Claims 18-22

Dependent claims 18-22 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in

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respect of inventive step (Article 33(2) and (3) PCT).